

CLAIMS PENDING AFTER RESTRICTION REQUIREMENT

- 1 1. A mutant antibody comprising a reactive site not present in the wild-type of
2 said antibody and a complementarity-determining region that specifically binds to a metal chelate,
3 wherein said reactive site is in a position proximate to or within said complementarity-determining
4 region.
- 1 2. The mutant antibody according to claim 1, wherein said reactive site is a side-
2 chain of a naturally occurring or non-naturally occurring amino acid.
- 1 3. The mutant antibody according to claim 2, wherein said reactive site is the
2 -SH group of cysteine.
- 1 4. Canceled.
- 1 5. Canceled.
- 1 6. Canceled.
- 1 7. Canceled.
- 1 8. Canceled.
- 1 9. Canceled.
- 1 10. A polypeptide comprising a peptide sequence according to SEQ. ID NO.:5
2 (FIG. 11).
- 1 11. A polypeptide comprising a peptide sequence according to SEQ. ID NO.: 7
2 (FIG. 14).
- 1 12. Canceled.
- 1 13. Canceled.
- 1 14. The mutant antibody according to claim 1, wherein said mutant antibody is
2 mutant of CHA255.
- 1 15. The mutant antibody according to claim 14, wherein serine-95 of the light-
2 chain is substituted by a cysteine residue.

1 16. The mutant antibody according to claim 1, wherein said antibody is a
2 bifunctional antibody further comprising a second complementarity-determining region that
3 specifically binds to a cell-surface antigen.

1 17. The mutant antibody according to claim 1, further comprising a targeting
2 moiety covalently attached thereto.

1 18. The mutant antibody according to claim 17, having the structure:

2 Ab-L-T

3 wherein,

4 Ab represents said antibody;

5 L is a chemical bond or linking group that may contain one or more sites; and

6 T is said targeting moiety.

1 19. The mutant antibody according to claim 17, wherein said targeting moiety is
2 an antibody that binds specifically to a cell surface antigen.

1 20. The mutant antibody according to claim 1, further comprising said metal
2 chelate bound to said complementarity-determining region, wherein said chelate comprises a
3 reactive functional group of complementary reactivity to said reactive site of said antibody.

1 21. The mutant antibody according to claim 20, further comprising a covalent
2 bond between formed by reaction of said reactive site of said antibody and said reactive functional
3 group of said chelate.

1 22. The mutant antibody according to claim 20, wherein said reactive site of said
2 chelate is an acrylamido moiety.

1 23. The mutant antibody according to claim 1, wherein said metal chelate is a
2 polyaminocarboxylate chelate of a metal ion selected from the group consisting of transition metal
3 ions and lanthanide ions.

1 24. A pharmaceutical composition comprising the mutant antibody according to
2 claim 17, and a pharmaceutically acceptable carrier.

1 25. An mutant antibody comprising a cysteine residue not present in the wild-type
2 of said antibody and a complementarity-determining region that specifically binds to a metal chelate,
3 wherein said cysteine is in a position proximate to or within said complementarity-determining
4 region.

1 26. Canceled.

1 27. Canceled.

1 28. Canceled.

1 29. Canceled.

1 30. The antibody according to claim 25, wherein said antibody is a bifunctional
2 antibody further comprising a second complementarity-determining region that specifically binds to
3 a cell-surface antigen.

1 31. The mutant antibody according to claim 25, further comprising a targeting
2 moiety covalently attached thereto.

1 32. The mutant antibody according to claim 31, having the structure:

2 Ab-L-T

3 wherein,

4 Ab represents said antibody;

5 L is a chemical bond or linking group that may contain one or more functional
6 groups; and

7 T is said targeting moiety

1 33. The mutant antibody according to claim 31, wherein said targeting moiety is a
2 member selected from the group consisting of antibodies and antibody fragments, each of which
3 bind specifically to a cell surface antigen.

1 34. The mutant antibody according to claim 25, further comprising said metal
2 chelate bound to said complementarity-determining region, wherein said chelate comprises a
3 reactive functional group of complementary reactivity to the -SH side-chain of said cysteine
4 residue.

1 35. The mutant antibody according to claim 34, further comprising a covalent
2 bond formed by reaction of the -SH side-chain of cysteine and said reactive functional group of said
3 chelate.

1 36. The mutant antibody according to claim 35, wherein said reactive functional
2 group of said chelate is an acrylamido moiety.

1 37. The mutant antibody according to claim 25, wherein said metal chelate is a
2 polyaminocarboxylate chelate of a metal ion selected from the group consisting of transition metal
3 ions and lanthanide ions.

1 38. A pharmaceutical composition comprising the mutant antibody according to
2 claim 31, and a pharmaceutically acceptable carrier.

1 39. A method of treating a patient by administration of a metal chelate, said
2 method comprising the steps of:

3 (a) administering to said patient a pretargeting reagent;

4 (b) following step (a), administering to said patient a mutant antibody comprising;

5 (i) a complementarity-determining region that specifically binds to said metal chelate;

6 (ii) a reactive site not present in the wild-type of said antibody and, wherein said
7 reactive site is in a position proximate to or within said complementarity-
8 determining region; and

9 (iii) a recognition moiety that binds specifically with said pretargeting moiety,

10 thereby forming a complex between said pretargeting reagent and said mutant
11 antibody; and

12 (c) following step (b) administering to said patient said metal chelate, wherein said chelate
13 comprises a reactive functional group having a reactivity complementary to the
14 reactivity of said reactive site of said antibody, thereby;

15 (i) specifically binding said chelate to said complementarity-determining region; and

16 (ii) following step (i) forming a covalent bond between said mutant antibody and said
17 metal chelate through coupling the reactive functional group of said chelate
18 with said reactive site of said mutant antibody.

1 **40.** The method according to claim 39, further comprising, between steps (a) and
2 (b), administering a clearing agent to said patient.

1 **41.** A method of treating a patient by administration of a metal chelate, said
2 method comprising the steps of:
3 (a) administering to said patient a pretargeting reagent;
4 (b) following step (a), administering to said patient a mutant antibody comprising;
5 (i) a complementarity-determining region that specifically binds to said metal chelate;
6 (ii) a reactive site not present in the wild-type of said antibody and, wherein said
7 reactive site is in a position proximate to or within said complementarity-
8 determining region; and
9 (iii) a recognition moiety that binds specifically with said pretargeting moiety,
10 thereby forming a complex between said pretargeting reagent and said mutant
11 antibody; and
12 (c) following step (b) administering to said patient said metal chelate, wherein said chelate
13 comprises a reactive functional group having a reactivity complementary to the
14 reactivity of said reactive site of said antibody, thereby;
15 (i) specifically binding said chelate to said complementarity-determining region; and
16 (ii) following step (i) forming a covalent bond between said mutant antibody and said
17 metal chelate through coupling the reactive functional group of said chelate
18 with said reactive site of said mutant antibody.